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Self-Care Practices Among of Diabetic Patients in a Rural Area of Karnataka

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ABSTRACT

Introduction: Diabetes mellitus causing a significant public health problem by increasing its burden globally. It is also considered a disease of poor lifestyle. The risk of these complications can be minimized by maintaining a good glycaemic control. The patients with good diabetes self-care behaviours can attain an excellent glycaemic control and lowering the micro and macro vascular complications

Methods: A community based cross-sectional study was conducted in a rural area of Bengaluru. Diabetic patients aged 20 years and above residing in the same area for more than 6 months were included. Multistage sampling technique used to select samples. The semi structured questionnaire from The Summary of Diabetes Self-care Activities (SDSCA) Measure was used.

Results: A total of 169 diabetic patients were included in the study. Healthy diet was consumed by 71.6% and regular physical activities for at least 30 min a day was followed by 16.6%. Weight monitoring was done by 49.1% subjects. Regular foot examination by the doctor was observed among 42.6% and 46.7% were using covered shoes.

Conclusion: Diabetic patient in rural Bangalore follow good self-care behavior regarding diet, foot care and eye examination but very poor in exercise and glycemic/ HbA1c monitoring.

Keywords: Self care, Diabetes, SDSCA

BACKGROUND

Diabetes mellitus, a non-communicable disease, causing a significant public health problem by increasing its burden globally, particularly in developing countries. As per the International Diabetes Federation ninth atlas 2019, approximately 463 million adults (20-79 years) were living with diabetes and by 2045 this will rise to 700 million. In India approximately 77 million people were living with diabetes in 2019.[1] Urbanization is contributing to its increased prevalence. A survey conducted in Madras city showed age-standardized prevalence of diabetes had increased to 11.6 % from 8.2 % in just 5 years.[2] Prevalence of obesity, unhealthy eating patterns and physical inactivity are increasing even among peri-urban population.

Diabetes Mellitus is characterized by hyperglycaemia and disturbance of carbohydrate, fat and protein metabolism which are associated with absolute or relative deficiency of insulin action and/or insulin secretion. Although diabetes is an endocrine disease its major manifestations are those of metabolic diseases.[3] It is also considered a disease of poor lifestyle with physical inactivity and unhealthy eating habits. The real burden of the disease is due to its micro and macro-vascular complications. The risk of these complications can be minimized by maintaining a good glycaemic control, adherent to the treatment, regular followup, comprehensive examination and early detection of any complications. Self-care plays a

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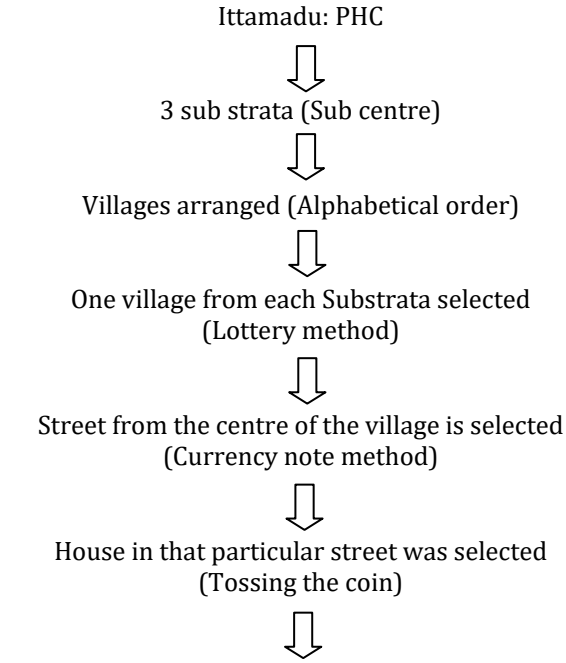
major role in its management. It has been defined as an evolutionary process of development of knowledge or awareness by learning to survive with the complex nature of the diabetes in a social context.[4] The patients with good diabetes self-care behaviors can attain an excellent glycemic control and lowering the micro and macro vascular complications.[5] Good glycemic control with the right foot care and diabetes education can prevent up to 85% of the diabetic foot amputations.[6] UKPDS and Diabetes Control and Complications Trial (DCCT) suggested the good glycaemic control can prevent end stage renal disease 1/3rd and reduction of the incidence of microalbuminuria by 39%.[7] Good glycemic control, timely screening and right intervention can delay or prevent the onset of diabetic nephropathy, retinopathy and cardiovascular diseases.[8]

There is continuing need to assess the level of self-care activities by patients as it facilitates the health-care professionals to identify and thereby helping them in planning interventions to improve medication adherence and self-care activities. Hence this study was undertaken to identify self-care management followed by known diabetic's rural area of Bengaluru.

METHODOLOGY

A community based cross-sectional study was conducted in a rural area of Bengaluru for 13 months. Diabetic patients, aged 20 years and above residing in the same area for more than 6 months were included. Patients with lower limbs amputated, on wheel chair or bed ridden state, and inability to count fingers at 3 meters were excluded. On the basis of a community-based study in India, good self-care activities among diabetics with respect to diet, exercise, blood sugar monitoring, and drug adherence ranged from 20% to 80%.[9] Taking the prevalence of good self-care activities as 50% (to get the maximum sample size) at an absolute precision of 10% and at 95% confidence level, the sample size calculated was 100. A design effect of 1.5 was applied to make allowance for heterogeneity which gave the revised sample size of 150.

Ittamadu, a Primary Health Centre located just 15 km from the Bangalore center with 19 villages including a population of 10,911(PHC record 2014) was selected. For the required sample size of 150 from the entire population, the villages were divided into three different strata based on the sub-center. Using stratified random sampling method, sample to be studied from each stratum was calculated. Villages in each stratum were arranged according to alphabetical order. Using lottery method, one village was selected randomly in each stratum. From the center of the village using a currency note the street was selected. In that street by tossing a coin, the side of the street was selected. Houses were numbered in that selected side of street. Then the first house was selected using a random number from a currency note, and then the selected house in that particular street was visited. Subsequent houses were selected following the "nearest continuous house from the last house to the right" criteria asking the head of the family for known diabetic/s in their house and the process was continued till the required sample from that particular stratum was reached. In houses that had more than one diabetic patient, all were included in the study. Diabetic patients who were not available on the day of the visit were revisited, and patients who could not be contacted despite three consecutive visits were excluded from the study.



The study questionnaire was adapted from The Summary of Diabetes Self-care Activities (SDSCA) Measure.[10] The semi structured questionnaire captured the sociodemographic details, the medical history of the patient, the diabetic history in particular. The questions were asked about the participants diabetes self-care activities during the past 7 days. If participant was sick during the past 7 days, then they were asked to recall to the last 7 days that when they were not sick.

Ethical approval was obtained from the Institutional Ethics Review Board. Informed consent was obtained from each patient. The investigator contacted study participants at their homes explained the purpose of the study and interviewed them. Later, all patients were counselled and given a health education on standard self-care activities for diabetes. Patients requiring referral were directed to the Department of Endocrinology at a tertiary care center.

RESULTS

For comprehensive results, a total of 169 diabetic patients were included in the study, among them males

were predominant with 61.5% and females 38.5%. Patients aged more than 60 years constituted 55.6%.Many subjects 21.3% were not literate .The socio-demographic details of the study participants are shown in Table 1.Majority (55.1%) were diagnosed with diabetes for less than 5 years and 55% patients were diagnosed as a result of complications. Details regarding disease profile of study participants given in table 2.

Table 1: Socio Demographic details of Study participants (n=169)

Variables	Respondents (%)
Age	
<35 years	3 (1.8)
35-50 years	72 (42.6)
>60 years	94 (55.6)
Sex	
Male	104 (61.5)
Female	65 (38.5)
Education	
Not literate	36 (21.3)
Primary	36 (21.3)
Secondary	45 (26.6)
High school	14 (8.3)
Intermediate	37 (21.9)
Graduate	1 (0.6)
S E status(per capita income)	
Upper class [5357 and above]	2 (1.2)
Upper middle class [2652- 5356]	6 (3.6)
Middle class [1570- 2651]	100 (59.2)
Lower middle class [812 - 1569]	49 (29)
Lower class [<811]	12 (7.1)

Table 2: Disease profile of study participants (n=169)

Variables	Respondents (%)
Duration of diabetes	
<5 years	93 (55.1)
5-10years	67 (39.6)
>10 years	9 (5.3)
Reason for Diagnosis	
Routine screening	24 (14.2)
Symptoms	42 (24.9)
Complications	93 (55)
Others	10 (5.9)
Alcohol consumption	
Current drinker	62 (36.7)
Past drinker	66 (39)
Never	41 (24.3)

Table 3: Self-care followed by known diabetics (n=169)

Self-care activities	Respondents (%)
Modified Diet	121 (71.6)
Regular physical exercise	28 (16.6)
Weight monitoring	83 (49.1)
Blood sugar monitoring	13 (7.7)
HbA1C Monitoring	15 (8.9)
Foot examination	72 (42.6)
Eye examination	86 (50.9)
Wearing covered shoes	79 (46.7)
Carry sugar	28 (16.6)
Carry Diabetic label	18 (10.7)

Concerned to diet, 71.6% said they were taking healthy diet as advised by their dietician or physician, but only 7.8% participants consumed fruits/vegetables and 1.9% participants consumed high fat diet on all days of the week. Regarding the physical activity only 16.6% were doing regular physical activities for at least 30 min a day and weight monitoring was done by 49.1%.

Regular foot examination by the doctor was observed among 42.6% and 46.7% were using covered shoes, Most of the study participants 55.8% washed their feet daily but among them only 6.7% dried between their toes after washing. Regular eye examination was observed among 50.9%.

All participants were on oral hypoglycemic agents (OHAs) with 63.5% of adherence. Among those who were on daily insulin injections (n=58), adherence was 78%. Only 32.5% of our study participants underwent blood sugar testing at least once in past 3 months and 7.7% were monitoring their blood sugar level at home as advised by their doctor. Majority, 91.1% had not undergone HbA1c test even once in their past. Few of our patients 16.6% were carrying a form of sugar and 10.7% were carrying a label as diabetic in their pocket.

DISCUSSION

The present study was done to assess the self-care activities practiced among diabetic patients in a rural area. People will change their behavior and attitude only if they perceive themselves to be at high risk and if they are likely to get affected with diabetes in the near future. The management of diabetes mellitus involves appropriate life style changes, nutritional and pharmacological regimen adherence and it also requires intensive self-care education and counseling to the patient.

In the present study, it was observed that 71.6% said they were taking modified diet as advised by their dietician or physician. Similar findings were also seen in a study done by Mukhopadyaya et al, where 82.8% were on modified diet.[11] Also, in our study only 4.8% of study participants included vegetables and fruits in their diet on all days of week. Similar findings of 5.8% were seen in a study done by Uma Maheshwari R et al.[12]whereas, the studies done by Gopichandran et al and Rajasekharan et al showed only 26% of diabetic consume fruits and vegetables regularly in their diet.[13,14] This minimal use of fruits and vegetables in our study could be due to lack of knowledge about the nutritional importance of fruits and vegetable and also due to their beliefs and attitude. The World Health Organization (WHO) recommends a minimum of 400 g of fruit and vegetables intake per day. Adequate intake of fruits and vegetables not only helps in better control of blood sugar levels but also keeps at bay, the complications such as cardiovascular diseases, stroke, gastrointestinal tumors, etc.[15] However, it was encouraging to note

that very few study subjects consumed high-fat diet (1.6%) on all days of the week. Similar findings were seen in a study by Gopichandran et al.[13] Consumption of diet rich in fats, especially saturated and trans fats is a major risk factor for cardiovascular diseases. The risk of cardiovascular events is more among diabetic people.[16] Hence, it is important to stress upon healthy dietary self-care activities for all Diabetic patients.

The physical exercise component of self-care activities appeared to be practiced poorly among our participants, as only 16.6% said they were involved in regular physical activity of at least 30 min on all days of the week. A separate exercise session apart from their day to day physical activities was carried out by only 16.5% participants. Similar findings were seen in studies conducted in southern India.[13] Regular exercises are recommended as they have many beneficial effects like reduction in insulin resistance, better blood sugar control, better control of blood pressure levels and cardio protective role.

In the present study 32.5% subjects regularly got their blood sugar examined in the laboratory. Similar findings were seen in studies conducted elsewhere.[13,15,17] Regular monitoring of blood sugar levels is important in the management of diabetes, as it helps in assessing the effectiveness of the current treatment regimen of the patient. Blood glucose monitoring at home was lacking in 93% of the study participants. Similar findings were reported in other community-based studies in Maharashtra[18] Andhra Pradesh[19] Gujarat[20] with self-monitoring of blood glucose level lacking in 70%, 93.3%and 84%, of the study participants, respectively. Many participants reported poverty as the main reason, as they could not afford a glucometer and its strips for self-monitoring. There was also apprehension towards needle prick, and some lacked the training of self-injection. Adherence to oral hypoglycemic drugs (63.5%) and insulin injections (78%) was found to be high among our study participants. The adherence rates to pharmacotherapy in our study is consistent with the study conducted by Gopichandran et al, in which an adherence rate of 79% was identified.[13] This finding may be due to repeated health education messages given by heath care professionals as strict adherence to medications will prevent or minimize acute or chronic complications of diabetes.

The practice of washing of feet every day (55.8%) and examining feet (42.6%) were found in most of our study participants. This finding is in contrast to a study done in Pakistan in which only 20% of the participants practiced daily feet washing and 17% examined feet daily.[21] This variation may be due to the practice of frequent washing of feet in India due to religious and cultural reasons.

In present study it was observed that 50.9% were had an eye check-up in the last 1 year which was similar to findings in a study done by Singh R P et al , which showed 61.8% had an eye check-up in last 1 year.[22] Another study conducted by Nikhil P H et al showed that, 5.7% of study subjects were following regular eye care for Diabetes.[23] This difference observed may be due to availability of eye examination facilities in our study area and regular awareness programs being conducted.

In the present study it was seen only 16.6% were carrying sugar with them while travelling. Where as in a study conducted by Padma K et al in Andhra Pradesh showed that 42.7 % patients out of 117 were carrying sugar with them.[24]

The study has several limitations. First is the recall bias, the subjects has to recall their self care activities and sometimes there may be variations in planning the activities and its execution. Since SDSCA is a self-report questionnaire, the estimates for diet, exercise, etc., as reported by diabetic patients may be subject to some social desirability bias. Since ours was a cross-sectional interview, there are inherent issues of temporality and thus, cause and effect relationships may not be very clear in our study. This can be prevented by performing a prospective study with regular follow-up.

CONCLUSION

Good self-management behaviour among patients with diabetes is high with respect to adherence to drugs, diet, foot care and eye examination but very poor with respect to exercise and monitoring blood sugars.

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